WHAT IS CLAIMED IS:

1. A physiological monitor comprising:

a sensor interface in communication with a peripheral tissue site and having an interface output responsive to light transmitted through said site; and

a signal processor in communication with said sensor interface output that provides a plurality of parameters corresponding to oxygen status or plethysmograph features of said site.

2. The physiological monitor of Claim 1 wherein said parameters comprise a first value and a second value related to said site.

3. The physiological monitor of Claim 2 wherein said first value is an arterial oxygen saturation and said second value is a venous oxygen saturation.

4. The physiological monitor of Claim 3 wherein said parameters further comprise the difference between said arterial oxygen saturation and said venous oxygen saturation.

5. The physiological monitor of Claim 3 wherein said second value is derived from an active pulse generated at said site.

6. The physiological monitor of Claim 5 wherein:

said signal processor output further comprises a scattering indicator corresponding to said site; and

said sensor interface further comprises a pulser drive controlling the amplitude of said active pulse, said drive responsive to said indicator.

7. The physiological monitor of Claim 2 wherein at least one of said values is an indication of perfusion.

8. A physiological monitor comprising:

a plurality of sensor interfaces each in communications with one of a plurality of peripheral tissue sites, each of said interfaces having one of a plurality of outputs responsive to light transmitted through a corresponding one of said sites; and

a signal processor in communication with said sensor interface outputs, said processor having an output comprising a plurality of parameters corresponding to oxygen status or plethysmograph features of said sites.

9. The physiological monitor of Claim 8 wherein said parameters comprise a first value relating to a first of said peripheral tissue sites and a second value relating to a second of said peripheral tissue sites.

10. The physiological monitor of Claim 9 wherein said first value and said second value are arterial oxygen saturations.

11. The physiological monitor of Claim 9 wherein said first value and said second value are plethysmograph waveform phases.

12. The physiological monitor of Claim 8 further comprising a sensor attachable to each of said sites, said sensor comprising:

a plurality of emitters and a plurality of detectors, at least one of said emitters and at least one of said detectors being associated with each of said sites;

a connector in communications with said sensor interfaces; and

a plurality of signal paths attached between said emitters and said detectors at a first end and said connector at a second end.

13. A physiological monitoring method comprising the steps of:

deriving a reference parameter and a test parameter from oxygen status measured from at least one of a plurality of peripheral tissue sites; and

comparing said reference parameter to said test parameter so as to determine a patient condition.

14. The physiological monitoring method according to Claim 13 wherein said reference parameter is a first oxygen saturation value and said test parameter is a second oxygen saturation value and said comparing step computes a delta oxygen saturation value equal to the arithmetic difference between said first oxygen saturation value and said second oxygen saturation value.

15. The physiological monitoring method of Claim 14 wherein said reference parameter is an arterial oxygen saturation measured at a particular one of said sites, said test parameter is a venous oxygen saturation measured at said particular one site and said comparing step determines the presence of a patient abnormality based on a negative delta oxygen saturation value.

16. The physiological monitoring method according to Claim 14 wherein said reference parameter is an arterial oxygen saturation value at a particular one of said

sites, said test parameter is a venous oxygen saturation value at said particular site, said method further comprising the steps of:

monitoring changes in said delta oxygen saturation as a function of inspired oxygen; and

adjusting inspired oxygen so that said delta oxygen saturation value remains constant with changes in inspired oxygen.

17. The physiological monitoring method according to Claim 14 wherein said reference parameter is a first arterial oxygen saturation value at a first of said sites, said test parameter is a second arterial oxygen saturation value at a second of said sites, said method further comprising the step of detecting a patent ductus arteriosus when said delta saturation value is substantially zero.

18. The physiological monitoring method according to Claim 14 wherein said reference parameter is a first arterial oxygen saturation value at a first of said sites, said test parameter is a second arterial oxygen saturation value at a second of said sites, said method further comprising the step of detecting pulmonary hypertension when said delta saturation value is substantially non-zero.

19. The physiological monitoring method according to Claim 14, wherein said reference parameter is a first arterial oxygen saturation value at a first of said sites, said test parameter is a second arterial oxygen saturation value at a second of said sites, said method further comprising the step of detecting an aortic coarctation when said delta saturation is substantially non-zero.

20. The physiological monitoring method according to Claim 13, wherein said reference parameter is a plethysmograph feature measured at a first of said sites, said test parameter is a plethysmograph feature measured at a second of said sites.

21. The physiological monitoring method according to Claim 20, wherein said comparing step determines the phase difference between plethysmographs at said first site and said second site.

22. The physiological monitoring method according to Claim 21, further comprising the step of detecting a patent ductus arteriosus when said phase difference is substantially non-zero.

23. The physiological monitoring method according to Claim 21, further comprising the step of detecting an aortic coarctation when said phase difference is substantially non-zero.

24. The physiological monitoring method according to Claim 20, wherein said comparing step determines a relative amount of damping between plethysmographs at said first site and said second site.

25. The physiological monitoring method according to Claim 24, further comprising the step of detecting a patent ductus arteriosus when said damping is substantially non-zero.

26. The physiological monitoring method according to Claim 24, further comprising the step of detecting an aortic coarctation when said damping is substantially non-zero.

27. The physiological monitoring method according to Claim 24, further comprising the step of detecting pulmonary hypertension when said damping is substantially non-zero.